

REMARKS

By this amendment, claims 11 and 16 have been amended for typographical reasons. No new matter has been added. Accordingly, claims 11-19 remain pending in this application. Favorable reconsideration of this application, as presently amended, and in light of the following discussion, is respectfully requested.

Claims 11-15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kim, et al. (U. S. Patent 6,232,563, hereinafter "Kim") in view of Murakami, et al. (JP4-196434, hereinafter "Murakami").

Applicants respectfully traverse these rejections for the reasons discussed below.

None of the prior art references teach or suggest "performing an etching process to remove the photoresist layer covering the metal pad so as to form a hole that exposes the metal pad". For example, Kim teaches forming a hole that exposes the barrier layer, but fail to teach or suggest "forming a hole that exposes the metal pad". In fact, Kim teaches "photoresist is coated on the barrier metal 14', and selectively removed to form a photoresist pattern 15 so as to expose a portion of the barrier 14' over the pad 12". See Kim at column 3, lines 49-52 and Fig. 3B. Likewise, Murakami teaches gold bumps for electrodes are formed on an integrated circuit, and does not teach "performing an etching process to remove the photoresist layer covering the metal pad so as to form a hole that exposes the metal pad". See Murakami at the English-language abstract and Figs. 1(a)-1(c).

There is no teaching in Kim to form a hole that exposes the metal pad. The only photoresist pattern 15 described in Kim exposes a portion of the barrier 14' over the pad 12. Forming a hole that exposes the metal pad is not contemplated by Kim. One of ordinary skill in the art would not have been motivated to form a hole that exposes the metal pad by the teachings of Kim. Instead, the teachings of Kim would lead one to exposes a portion of the barrier 14', which is known as an UBM (under bump metallurgy) layer to improve adhesion between the pads and the overlying bumps, and prevent material diffusion between the pads and the overlying bumps.

Accordingly, Applicants respectfully submit that the cited references, either alone or in combination, fail to disclose or render obvious the feature of the above-discussed present invention as set forth in claim 11.

As neither Kim nor Murakami, when taken alone or in combination, teaches or suggests "performing an etching process to remove the photoresist layer covering the metal pad so as to form a hole that exposes the metal pad" of amended claim 11, Applicants submit that claim 11 is allowable over the cited references. Insofar as claims 12-15 depend from claim 11, Applicants further submit that these claims are also allowable, for at least the reasons discussed above.

Conclusions


In view of the amendments to the specification and claims and the remarks set forth above distinguishing the present Application from the cited references, Applicants submit that the Examiner's rejections have been overcome. It is therefore respectfully requested that the Examiner withdraw the rejections and allow the present claims.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the undersigned at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper, may be charged to Deposit Account No. 50-2394.

Respectfully submitted,

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